

XXXIII. *Meteorological Observations at Caën in Normandy; for 1765, 1766, 1767, 1768, 1769. By Nathanael Pigott, Esq; communicated by the late Dr. Bevis, F.R.S.*

Read May 9, 1771.

1765.

| Months | Days | Barometer | Inches | Mean | Ther. | Mean | Remarks |
|----------|--------------|--------------------------------|----------------|--------|--------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| January | 31 9 | Greatest height Least ditto | 30,20 29,10 | 29,65 | | | Wind chiefly S.S.W. 15th frost in the morning; the rest of the month was cloudy. |
| | 8 31 | Greatest ditto Least ditto | | | 46,5 37,5 | 42 | |
| February | 24 28 | Greatest ditto Least ditto | 30,14 28,87 | 29,505 | | | Wind chiefly N. and E. N. E. 4th frost and cloudy; 18th, 19th, 20th, 21st, 24th, 26th, small frost; 27th thaw; 28th rainy. |
| | 27 19 | Greatest ditto Least ditto | | | 44,5 33,5 | 39 | |
| March | 8 23 1 | Greatest ditto Least ditto | 30,02 28,97 | 29,495 | | | Wind chiefly S. S. W. 11th, 12th, 14th, 19th, 20th, 27th, 28th, high wind; 13th, 18th, 30th, 31st, stormy. |
| | 24 1 | Greatest ditto Least ditto | | | 51,0 40,0 | 45,5 | |
| April | 12 20 | Greatest ditto Least ditto | 30,38 29,57 | 29,975 | | | Wind variable; 1st stormy; 4th, 6th, 7th, 8th, 9th, 10th, 13th, 14th, 15th, 22d, high wind; sky almost always cloudy: 2d some swallows: 26th some thunder: fruit trees begin to bloom. |
| | 27 28 13 | Greatest ditto Least ditto | | | 67,5 47,5 | 57,5 | |
| May | 12 15 24 | Greatest ditto Least ditto | 30,24 29,56 | 29,90 | | | Wind mostly in the N. points: this month remarkable for fine sun, and clear sky. |
| | 22 23 5 | Greatest ditto Least ditto | | | 67,0 53,0 | 60,0 | |
| June | 9 16 17 | Greatest ditto Least ditto | 30,22 29,78 | 30,00 | | | Wind mostly in the North points: weather changeable the whole month: 3d some thunder and lightening with heavy rain at 4h P. M. |
| | 4 5 29 30 | Greatest ditto Least ditto | | | 70,0 61,0 | 65,5 | |

Month

Meteorological Observations, at Caën in Normandy.

1765.

| Months | Days | Barometer | Inches | Mean | Ther. | Mean | Remarks |
|----------|------------|--------------------------------|--------|---------|--------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| July | 4 | Greatest height | 30,28 | 29 99 | | | Wind most in the northern points; beginning, cloudy sky; middle, sun with clouds; end, windy and sun with flying clouds; 25th at 7h. P.M. therm. 77°. |
| | 7 | Least ditto | 29,70 | | | | |
| | 19 25 1 | Greatest ditto. Least ditto | | | 72,0 62,0 | 67,0 | |
| August | 18 | Greatest ditto | 30,30 | 29,66 + | | | These observations are from the 10th to the 24th only. Wind variable; the beginning showery; 12th stormy; end, sunshine and clouds. |
| | 22 | Least ditto | 29,03 | | | | |
| | 23 12 | Greatest ditto Least ditto | | | 76,0 59,0 | 67,5 | |
| November | 21 | Greatest ditto | 30,27 | 29,645 | | | Wind variable: beginning rainy; middle foggy; end, white frost in the mornings. |
| | 25 | Least ditto | 29,02 | | | | |
| | 1 23 24 | Greatest ditto Least ditto | | | 56,0 42,0 | 49,0 | |
| December | 16 | Greatest ditto | 30,34 | 29,73 | | | Wind chiefly in the East points: beginning frosty: 5th hard frost; 8th, 9th, 10th, 11th, rain; remainder, almost constant frost. |
| | 11 | Least ditto | 29,12 | | | | |
| | 8 25 | Greatest ditto Least ditto | | | 51,0 37,0 | 44,0 | |

1766.

| | | | | | | | |
|----------|-------|-------------------------------|-------|--------|--------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| January | 29 | Greatest ditto | 30,72 | 30,375 | | | Wind chiefly E. S. E. from the beginning till the 20th, foggy and cloudy till the 30th; 31st, frost, 29th, 30th, 72 inches: height of barometer carefully set down. |
| | 2 3 | Least ditto | 30,03 | | | | |
| | 31 11 | Greatest ditto Least ditto | | | 40,0 27,0 | 33,5 | |
| February | 19 | Greatest ditto | 30 61 | 30,065 | | | In the beginning wind in the North points; in the middle in the South; at the end to the Northern points; frost till 11th; wind and rainy till the end. |
| | 17 | Least ditto | 29,52 | | | | |
| | 15 8 | Greatest ditto Least ditto | | | 45,0 30,0 | 37,5 | |

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Mete-

Meteorological Observations at Caën in Normandy.

1766.

| Month | Days | Barometer | Inches | Mean | Ther. | Mean | Remarks |
|-----------|-----------|--------------------------------|----------------|--------|--------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| March | 7 26 | Greatest height Least ditto | 30,29 28,84 | 29,565 | | | Wind variable; 1st, 22d, stormy; 26th hurricane; 23d, 24th, 25th, wind and snow in the nights. The whole month mostly cloudy: from 25th to 26th, quicksilver fell in barometer 0,67 inches. |
| | 13 1 3 | Greatest ditto Least ditto | | | 53,0 40,0 | 46,5 | |
| April | 7 24 | Greatest ditto Least ditto | 30,40 29,35 | 29,875 | | | Wind variable; most part of the month rain and wind. |
| | 27 1 | Greatest ditto Least ditto | | | 57,0 48,0 | 52,5 | |
| July | 4 9 | Greatest ditto Least ditto | 30,08 29,69 | 29,885 | | | These observations from the 2d to the 16th only. Wind variable; cloudy and rainy. |
| | 10 3 | Greatest ditto Least ditto | | | 70,5 63,0 | 66,75 | |
| August | 26 22 | Greatest ditto Least ditto | 30,27 29,86 | 30,065 | | | Wind at beginning in the North points; middle variable; end in the South points. Clouds and wind almost the whole month. |
| | 9 17 | Greatest ditto Least ditto | | | 76,0 64,0 | 70,0 | |
| September | 17 7 | Greatest ditto Least ditto | 30,38 29,60 | 29,99 | | | Wind till towards the end varying; from the 25th S. S. E. Clouds and wind the whole month. |
| | 27 16 | Greatest ditto Least ditto | | | 72,0 60,0 | 66,0 | |
| October | 2 8 | Greatest ditto Least ditto | 29,84 29,27 | 29,555 | | | Wind mostly E. S. E. the end of the month variable; clouds and wind; 6th stormy: these observations from the 1st to the 10th only. |
| | 5 9 | Greatest ditto Least ditto | | | 70,0 62,0 | 66 | |

Meteorological Observations, at Caën in Normandy.

1767.

| Months | Days | Barometer | Inches | Mean | The. | Mean | Remarks |
|-----------|-------------|-----------------|--------|--------|------|-------|-------------------------------------------------------------------------------------------------------------------------------|
| January | 21 | Greatest height | 30,10 | 29,575 | | | Wind mostly S. S. E. this month frosty; sometimes sharp and high winds. |
| | 13 | Least ditto | 29,05 | | | | |
| | 30 | Greatest ditto | | | 52,0 | 41,25 | |
| 13 | Least ditto | | 30,5 | | | | |
| February | 1 | Greatest ditto | 30,03 | 29,665 | | | Wind most in the South points. Rainy and windy from the 9th to the 15th. These observations only down to the 15th. |
| | 8 | Least ditto | 29,30 | | | | |
| | 1 | Greatest ditto | | | 54,0 | 52,0 | |
| 10 | Least ditto | | 50,0 | | | | |
| May | 24 | Greatest ditto | 33,30 | 29,86 | | | Wind varying the whole month. mostly rainy and windy. |
| | 30 | Least ditto | 29,42 | | | | |
| | 16 | Greatest ditto | | | 62,0 | 58,5 | |
| 4 | Least ditto | | 55,0 | | | | |
| June | 10 | Greatest ditto | 30,15 | 29,77 | | | Wind varying. 3d stormy; the whole month windy and rainy. |
| | 3 | Least ditto | 29,39 | | | | |
| | 29 | Greatest ditto | | | 65,5 | 60,25 | |
| 3 | Least ditto | | 55,0 | | | | |
| July | 18 | Greatest ditto | 30,02 | 29,825 | | | Wind varying. 21st stormy; from the 11th to the 30th cloudy and rainy. Few flies yet in the apartments, and these cannot fly. |
| | 21 | Least ditto | 29,63 | | | | |
| | 16 | Greatest ditto | | | 67,0 | 65,0 | |
| 12 | Least ditto | | 63,0 | | | | |
| September | 13 | Greatest ditto | 30,16 | 29,89 | | | These observations only from the 1st to the 15th; wind varying; weather changeable. |
| | 4 | Least ditto | 29,62 | | | | |
| | 4 | Greatest ditto | | | 72,0 | 68,0 | |
| 15 | Least ditto | | 64,0 | | | | |

Meteorological Observations at Caën in Normandy.

1767

| Months | Days | Barometer | Inches | Mean | The. | Mean | Remarks |
|----------|------|-----------------|--------|--------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| October | 15 | Greatest height | 30,16 | 29,92 | | | These observations from the 7th to the 20th only. Wind most in the North points, chiefly cloudy, some rain. |
| | 8 | Least ditto | 29,68 | | | | |
| | 8 | Greatest ditto | | | 62,0 | 57,5 | |
| | 14 | Least ditto | | | 53,0 | | |
| November | 28 | Greatest ditto | 30,37 | 29,79 | | | These observations from 14th to 29th only. Wind chiefly in the S. points; 18th, 21st, 22d, sun-shine and small frost. 16th the leaves still green on the trees. |
| | 15 | Least ditto | 29,21 | | | | |
| | 27 | Greatest ditto | | | 54,0 | 50,5 | |
| | 23 | Least ditto | | | 47,0 | | |
| December | 3 | Greatest ditto | 30,44 | 29,815 | | | 23d began to freeze very hard with N. N. E. wind. See an account of this frost lower down. 1st, most trees have leaves, but yellow and begin to fall. 13th, the trees stripped of their leaves. |
| | 20 | Least ditto | 29,19 | | | | |
| | 8 | Greatest ditto | | | 54,0 | 43,5 | |
| | 27 | Least ditto | | | 33,0 | | |

1768

| | | | | | | | |
|----------|----|----------------|-------|--------|------|-------|--------------------------------------------------------------------------------------------------------------------------------------|
| January | 5 | Greatest ditto | 30,00 | 29,55 | | | Wind mostly in the East points. 1st, much snow: high wind; hard frost to the 8th; 8th, thaws. The rest of the month rainy and windy. |
| | 8 | Least ditto | 29,10 | | | | |
| | 30 | Greatest ditto | | | 52,5 | 37,25 | |
| | 6 | Least ditto | | | 22,0 | | |
| February | 6 | Greatest ditto | 30,37 | 29,965 | | | In the beginning wind in the N. points: at the end in the S. This month mostly windy, cloudy and rainy. |
| | 10 | Least ditto | 29,56 | | | | |
| | 14 | Greatest ditto | | | 57,0 | 50,5 | |
| | 4 | Least ditto | | | 44,0 | | |

Mete-

Meteorological Observations at Caën in Normandy.

1768

| Months | Days | Barometer | Inches | Mean | The. | Mean | Remarks |
|--------|---------|-------------------------------|----------------|--------|--------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| March | 4 11 | Greatest height | 30.39 | 29.705 | | | Wind chiefly E. towards the N. greatest part of this month frosty. |
| | 15 | Least ditto | 29.02 | | | | |
| | 1 11 12 | Greatest ditto Least ditto | | | 57.0 44.0 | 50.5 | |
| April | 11 29 | Greatest ditto Least ditto | 30.16 29.43 | 29.795 | | | Wind changing; 6th, storm of thunder, lightning, and hail, at 5 h. P.M. lightning fell on the church, called Abbaie aux Dames, ran over the choir with quick serpentine motion, and then disappeared without any further mischief; 29th, rain and thunder at 11 h. $\frac{1}{2}$ A. M. |
| | 17 1 | Greatest ditto Least ditto | | | 61.0 51.0 | 56.0 | |
| | | | | | | | |
| May | 23 29 | Greatest ditto Least ditto | 30.17 29.35 | 29.76 | | | Wind chiefly in the N. points. This month was windy, and the sun shone with white broken clouds. 5th, at 10 h. P.M. storm of thunder, lightning and rain. |
| | 23 2 19 | Greatest ditto Least ditto | | | 70.0 56.0 | 63.0 | |
| | | | | | | | |
| June | 21 26 | Greatest ditto Least ditto | 30.16 29.55 | 29.855 | | | Wind chiefly in the Westerly points. 7th, at 4 h. P. M. storm of hail thunder and lightning; from 9th to 22d, windy and rainy; 24th, stormy, with rain thunder and lightning. |
| | 24 20 | Greatest ditto Least ditto | | | 69.0 62.5 | 65.8 | |
| | | | | | | | |
| July | 21 7 | Greatest ditto Least ditto | 30.14 29.55 | 29.845 | | | Wind chiefly in the Westerly points. This month cloudy and windy, with some rain. |
| | 1 20 | Greatest ditto Least ditto | | | 73.0 65.0 | 69.0 | |
| | | | | | | | |
| August | 9 4 | Greatest ditto Least ditto | 30.13 29.96 | 30.015 | | | These observations from the 3d to the 13th only. Wind most in the Western points; sky partly cloudy, partly clear. |
| | 12 9 | Greatest ditto Least ditto | | | 70.0 66.0 | 68.0 | |
| | | | | | | | |

Meteorological Observations at Caën in Normandy.

1768.

| Months | Days | Barometer | Inches | Mean | The. | Mean | Remarks |
|-----------|-------------|-------------------------------|----------------|-------|--------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| September | 14 | Greatest height | 30,03 | 29,74 | | | These observations from the 7th to the 15th only. Wind unfettled. 12th, some thunder in the morning; the other days wind, clouds or rain. |
| | 12 | Least ditto | 29,45 | | | | |
| | 14 8 | Greatest ditto Least ditto | | | 65,0 60,5 | 62,7+ | |
| October | | | | | | | October 30th, betwixt 12 h. and 13 h. at Harcourt, about 5 leagues S. W. of Caën, several gentlemen saw a ball of fire of a whitish colour, apparently of about a foot diameter, which cast a great light in the room, though the curtains were drawn, and there was a great fire and several wax lights in it: its direction from N. to S. It fell with great velocity, and seemingly about 30 or 40 yards from the room, without any explosion. I had just left the apartment, but was immediately informed of it; about 3 hours after, there was a violent hurricane of wind, hail and rain. |
| November | 19 | Greatest ditto | 30,22 | 29,41 | | | Barometer at noon the 21st 29,43 |
| | 23 | Least ditto | 28,60 | | | | ditto — — 22d 28,46 |
| | 15 30 23 | Greatest ditto Least ditto | | | 54,0 44,0 | 49,0 | fell in 24 hours 0,97 22d, continued rain; at 10 $\frac{1}{2}$ P. M. smart flashes of lightning with thunder. Wind varying this month and the weather cloudy, rainy and windy; 15th leaves begin to fall. |
| December | 12 2 | Greatest ditto Least ditto | 30,40 29,14 | 29,77 | | | Wind chiefly in the Southern points. 2d storm of wind and rain; 14th hard frost. The weather this month unfettled. |
| | 1 15 | Greatest ditto Least ditto | | | 52,0 32,0 | 42,0 | |

Meteorological Observations, at Caën in Normandy.

1769.

| Months | Days | Barometer | Inches | Mean | The. | Mean | Remarks |
|----------|-----------------|--------------------------------|----------------|--------|--------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| January | 14 1 | Greatest height Least ditto | 30,16 29,49 | 29,825 | | | Wind chiefly in the Southern points, cloudy, wind and rain; 24th white frost; 22d white frost: the weather this month unfetted. |
| | 13 22 24 | Greatest ditto Least ditto | | | 50,0 39,5 | 44,7 + | |
| February | 20 5 | Greatest ditto Least ditto | 30,19 29,26 | 29,725 | | | Wind mostly in the Eastern points. 4th at 11 h. P. M. hurricane, morning generally white frost. From the 22d to the end of the month, rainy, cloudy, and high wind. |
| | 28 1 | Greatest ditto Least ditto | | | 53,0 39,0 | 46,0 | |
| March | 3 11 | Greatest ditto Least ditto | 30,47 29,20 | 29,835 | | | Wind in the Northern and West points. All this month clouds and wind; little rain. |
| | 4 10 31 | Greatest ditto Least ditto | | | 55,0 46,0 | 50,5 | |
| April | 24 8 | Greatest ditto Least ditto | 30,13 29,08 | 29,605 | | | Wind at beginning in the North points; at the middle in the South points; at the end in the North points; 22d, white frost in the morning; the rest of the month chiefly rainy and windy. |
| | 28 2.3.4.5 6 | Greatest ditto Least ditto | | | 62,5 46,0 | 54,2 + | |
| May | 2 14 | Greatest ditto Least ditto | 30,39 29,50 | 29,945 | | | Wind varying; 18th, at 3 h. P. M. thunder; 20th at 4 h. P. M. rain with thunder and lightning; 23d, at 11 h. P. M. thunder and lightning; 23d, at 3 h. $\frac{1}{2}$ P. M. ther. 75°; 27th, at 4 h. P. M. a very heavy rain. This month mostly windy and rainy. |
| | 23 13 | Greatest ditto Least ditto | | | 73,0 54,0 | 63,5 | |
| June | 11 15 | Greatest ditto Least ditto | 30,19 29,65 | 29,92 | | | These observations from 2d to the 19th only; wind chiefly in the W. points. This month cloudy, windy and rainy. |
| | 9.10.13 15 | Greatest ditto Least ditto | | | 65,0 61,0 | 63 0 | |

Meteorological Observations at Caën in Normandy.

1769.

| Month | Days | Barometer | Inches | Mean | Ther. | Mean | Remarks |
|-----------|-------|-----------------|--------|--------|-------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| July | 10 | Greatest height | 30,16 | 29,60 | | | These observations from 6th to 16th only; wind variable; first days clouds; the last days clear sun. |
| | 8 | Least ditto | 29,04 | | | | |
| | 7 | Greatest ditto | | | 76,0 | 72,5 | |
| | 10 | Least ditto | | | 69,0 | | |
| August | 18 | Greatest ditto | 30,12 | 29,81 | | | These observations from the 14th to the 23d only. Wind chiefly in the West points; clouds and wind. |
| | 22 | Least ditto | 29,50 | | | | |
| | 15 | Greatest ditto | | | 70,0 | 66,7+ | |
| | 21 | Least ditto | | | 63,5 | | |
| September | 16 | Greatest ditto | 30,17 | 29,785 | | | Shifting winds; 9th, at 3h. P. M. a very heavy shower of hail from the W. the hailstones about the size of a middling walnut, of different irregular shapes; the largest of some, brought to me after the storm, diminished in volume, and weighed still 2 penny-weights and 2 grains; the storm lasted about 4 or 5 minutes. |
| | 12 | Least ditto | 29,40 | | | | |
| | 6 19 | Greatest ditto | | | 71,0 | 65,5 | |
| | 26 | Least ditto | | | 60,0 | | |
| October | 10 | Greatest ditto | 30,30 | 29,98 | | | Wind variable; weather unsettled; often changing. |
| | 22 | Least ditto | 29,66 | | | | |
| | 19 20 | Greatest ditto | | | 63,0 | 55,8 | |
| | 7 | Least ditto | | | 48,6 | | |
| November | 28 | Greatest ditto | 30,52 | 30,035 | | | These observations from 18th to 30th only; wind shifting; 19th, 20th, hard frost; the rest of the month mostly wind with some rain. |
| | 22 23 | Least ditto | 29,55 | | | | |
| | 27 | Greatest ditto | | | 55,0 | 47,5 | |
| | 20 | Least ditto | | | 40,0 | | |
| December | 4 | Greatest ditto | 30,38 | 29,59 | | | These observations from the 3d to 24th only; the wind almost always in the South points; wind and rain; 3d, squalls at 3h. P. M. the barometer being at 28,69 inches. |
| | 23 | Least ditto | 28,69 | | | | |
| | 23 | Greatest ditto | | | 55,0 | 49,0 | |
| | 8 | Least ditto | | | 43,0 | | |

Meteorological Observations at Caën in Normandy.

| Inches 1765 | Mean height of Barometer | Inches | Mean height of Barometer. | Remarks |
|----------------|-----------------------------|-------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 29,650 | January | 29,550 | January 1768 | These observations were made at noon, in a South-West room, with a barometer, whose tube is about $\frac{3}{16}$ of an inch diameter; in which the motion of the quicksilver, in squalls and gusts of wind, is extremely perceptible; yet, for further satisfaction, I ordered another to be made in London, with the greatest care, by Heath and Wing, with a nonius giving the $\frac{1}{100}$ part of an inch. I placed this barometer by the other, in July 1769; and having compared them every day for a year, I find that the ancient one marks $\frac{5}{100}$ of an inch more than the other; therefore, if from the mean height as above — 29,802 be deduced — 0,050 |
| 29,505 | February | 29,965 | February | |
| 29,495 | March | 29,705 | March | |
| 29,975 | April | 29,795 | April | |
| 29,900 | May | 29,760 | May | |
| 30,000 | June | 29,855 | June | |
| 29,990 | July | 29,845 | July | |
| 29,66+ | August | 30,015 | August | |
| | September | 29,710 | September | |
| 29,645 | November | 29,410 | November | |
| 29,730 | December | 29,770 | December | |
| 29,655 | mean of these means | 29,828+ | mean of these means | |
| 30,375 | January 1766 | 29,825 | January 1769 | the true mean height is 29,752 |
| 30,065 | February | 29,725 | February | |
| 29,565 | March | 29,835 | March | |
| 29,875 | April | 29,605 | April | |
| 29,885 | July | 29,945 | May | |
| 30,065 | August | 29,920 | June | |
| 29,990 | September | 29,600 | July | |
| 29,555 | October | 29,810 | August | |
| | | 29,785 | September | |
| 29,992— | mean of these means | 29,98 | October | |
| | | 30,035 | November | |
| | | 29,590 | December | |
| 29,575 | January 1767 | | | The greatest height observed, at noon, was, Jan. 29, 1766, 30,72 The least, Dec. 23, 1769, at 8 h. P. M. |
| 29,665 | February | | | |
| 29,860 | May | 29,805 | mean of these means | |
| 29,770 | June | | | |
| 29,825 | July | Mean height | In the years | |
| 29,890 | September | | | |
| 29,920 | October | 29,665 | 1756 | |
| 29,790 | November | 29,922 | 1766 | |
| 29,815 | December | 29,790 | 1767 | |
| | | 29,828+ | 1768 | |
| 29,790 | mean of these means | 29,805 | 1769 | |
| | | | mean of these means | |
| | | 29,802 | | Limits of the motion of quicksilver — 2,03 |

Hence it appears, that if the mean height of barometers, on a level with the surface of the sea, be supposed, with Dr. Scheuchzer, Phil. Trans. N^o 405, 406, 29,993 inches and the mean height at Caën, — — 29,752 ditto

0,241 the diff.

will be the greater mean weight of the atmosphere at the surface of the sea, then at Caën : and if, with the Doctor, we allow, for each tenth of an inch depression of the quicksilver, 90 feet elevation, my room, which is in the highest part of the town, will be about 217 feet above the level of the sea.

Monsieur de Luc, of Geneva, has given a method to measure the different elevation of places by barometers, grounded on his own observations, far more exact than any other before him; his rule is, "the difference of the logarithms of the height of the quicksilver, in the two places, reduced into French lines, and the logarithms carried to five places, including the characteristicks, will give the difference of elevation in toises, if Fahrenheit's thermometer be nearly at 66°; but about $\frac{1}{8}$ must be deducted from the elevation so given, if the thermometer be at 55° or temperate."

29,993 English inch. = 337,824 French lines log. 25286,8
29,752 ditto = 335,110 ditto log. 25251,9

diff. 34,9 toises

or 209 4 French feet = 223 English feet nearly; from which if $\frac{1}{8}$ = 12 $\frac{1}{2}$ nearly be deducted, 210 $\frac{1}{2}$ feet remain for the difference of elevation of my room and the surface of the sea, which differs 6 $\frac{1}{2}$ feet from the result given by the first hypothesis.

The greatest height observed, in these five years, with a good Fahrenheit's thermometer screened from the sun, in a S. W. room, was as follows at noon :

1765 August 23d }
1766 August 9th } 76°
1765 June 7th }

the least height of ditto Jan. 6th 1768 — — 14

1765 August 23, exposed the thermometer, at noon, to the sun, suspended on a thread between two sticks, in the middle of my garden at Caën, which may be about two English acres, so that the thermometer received the least reflected heat possible in that place; the quicksilver stood as follows,

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at 1^h P. M. 97°

at 2 ditto 96

1765 August 26, at a village, called *les Iles Bardelles*, 7 leagues from Caen, the same thermometer, in a South room, from which the sun was excluded by the window shutters, rose to 90°.

An Account of a remarkable degree of cold observed at Caën in Normandy.

| 1767 | Ther. | Hours | Barometer |
|----------|-------|----------|---------------------------------------------------|
| December | ° | h / | Inch. |
| 24 | + 12 | at 8 0 | 30,02 |
| | + 16 | at 9 0 | 30,02 |
| 25 | + 18 | at 11 0 | 29,9 { little wind at E. S. E. small fog. cloudy. |
| | + 15 | at 12 44 | |
| | + 18 | at 21 45 | |
| | | at 22 00 | |
| 26 | + 15 | at 10 00 | 29,67 wind N. E. |
| | + 11 | at 19 00 | |
| | + 12 | at 21 00 | |
| | | at 22 00 | |
| 27 | + 17 | at 7 00 | 29,49 no wind. |
| | + 16½ | at 8 00 | |
| | + 12 | at 10 00 | |
| | + 11 | at 11 00 | |
| | + 10 | at 18 00 | |
| | + 10 | at 20 00 | |
| 28 | | at 22 00 | 29,46 { little wind S. S. E. flying clouds. |
| | + 15 | at 8 20 | |
| | + 14 | at 11 00 | |
| | + 13 | at 19 00 | |
| 30 | + 18 | at 22 00 | 29,84 little wind S. flying clouds |
| | + 23 | at 7 00 | |
| | + 20 | at 10 00 | |
| | + 11 | at 19 00 | |
| | + 14 | at 21 00 | An |
| | | at 22 00 | |

An Account of a remarkable degree of cold, observed at Caën in Normandy.

| 1768 | Ther. | Hours | Barometer. |
|---------|-------|----------|---------------------------|
| January | ° | h / | |
| 3 | + 10 | at 11 00 | |
| | + 9 | at 20 00 | |
| 4 | + 11 | at 5 00 | |
| | + 10 | at 6 00 | |
| | + 8 | at 8 00 | |
| | + 6 | at 9 15 | |
| | 0 | at 12 | |
| | — 8 | at 19 30 | |
| | 0 | at 21 0 | 30,03 clear sky, no wind. |
| | | at 19 0 | 30,00 wind W. by S. |
| 5 | — 2½ | at 5 30 | |
| | — 2 | at 6 30 | |
| | — 2 | at 8 00 | |
| | + 1 | at 9 | |
| | 0 | at 9 30 | |
| | — 3 | at 10 00 | |
| | 0 | at 10 35 | |
| | 0 | at 11 00 | |
| | + 3 | at 19 30 | |
| | + 6 | at 20 00 | |
| | + 7 | at 21 00 | |
| | + 8 | at 21 30 | |
| | + 10 | at 22 15 | |
| 6 | + 14 | at noon | |
| | + 12 | at 7 15 | |
| | + 14 | at 8 45 | |
| | + 13 | at 10 00 | |

N. B. The sign + signifies, that the degrees marked by the quick-silver were above 0, or the beginning of the division.
The negative sign — signifies, that the degrees were below 0, or the beginning of the divisions.
The thermometer was exposed in the open air to the North.
The hours are astronomical hours.

Experi-

Experiments on some Liquids.

| 1768 | H. M. | |
|--------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jan. 3 | 11 30 | I placed a wine glaſs half full of rack, another half full of rum, in a North window, to the open air: the next day, at the ſame hour, the rack was frozen to a thick jelly, with icy particles; the rum alſo to a jelly, but leſs thick. |
| | 4 50 | I expoſed, as above, a wine glaſs, half full of cyder: ditto of beer. |
| | 5 13 | Ditto of red wine, called Beaujenci. |
| | 6 30 | The cyder began to freeze. |
| | | Ditto conſolidated. |
| 4 | 5 5 | The beer began to freeze. |
| | 6 30 | Ditto conſolidated. |
| | 5 12 | The wine began to freeze. |
| | 6 30 | Ditto nearly conſolidated. |
| | | The icy ſurface of the cyder being broken, it froze over again, in three or four ſeconds, the ice forming, with a progreſſive motion, very perceptible to the eye. |
| | 9 00 | I expoſed, as above, a wine glaſs half full of Malaga wine. |
| | | Half ditto of Burgundy, called Migraine. |
| | | Half ditto of Rouffillon wine. |
| | | Half ditto of ſpring water. |
| | | Half ditto of cyder-brandiy |
| 5 | 9 15 | The water began to freeze. |
| | 9 30 | Ditto conſolidated. |
| | 9 30 | The Malaga, Migraine, Rouffillon, began to freeze. |
| | 11 00 | Ditto ditto ditto conſolidated. |

N. B. The brandy did not freeze; but the 6th at noon, the quantity was diminished, and some icy particles stuck to the glass, above the surface of what remained. I found, by weighing the above liquids hydrostatically, in a temperate state of heat, that the migraine, cyder, beaujenci, boer, and the water, were very nearly of the same specific gravity; and that a piece of gold, which

| | | | |
|-----------------------|---|---|----------------|
| weighed in the water | - | - | 224,25 grains, |
| weighed in the Malaga | - | - | 224,00 ditto, |
| in the Rouffillon | - | - | 224,50 ditto, |
| in the brandy | - | - | 225,00 ditto. |